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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,774	08/09/2001	Dale K. Bell	60,130-1118; 01MRA0235	4835
26096	7590	03/25/2004	EXAMINER	
CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009			BURCH, MELODY M	
			ART UNIT	PAPER NUMBER
			3683	
DATE MAILED: 03/25/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/925,774	Applicant(s) BELL ET AL.	
	Examiner Melody M. Burch	Art Unit 3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5-10,13-18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3,5-10,13-18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3, 5-7, 13-15, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5091679 to Murty et al. in view of JP-4300709.

Re: claims 2, 3, 5, 13 and 18. Murty et al. show in figures 1, 2, and 4 a vehicle suspension assembly comprising: a shock absorber comprising a magnetized element 12, a conductive coil 14a,b,c disposed about the magnetized element, forming a circuit, a vehicle support 5 attachable to a wheel 4 with one of the magnetized element and the coil (particularly the magnetized element) fixed to move with the vehicle support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle support as disclosed in col. 2 lines 15-18, the magnetized plunger for generating a current in the coil by the movement of the magnetized plunger, and a battery 16 in communication with the circuit.

Murty et al. lack the limitation of a magnetized element and coil assembly being in the form of a magnetized *plunger* and coil assembly.

JP-4300709 teaches in figure 1 the use of a shock absorber used in an active suspension system having a magnetized plunger 14 and coil 15 assembly in which the coil is selectively actuated to provide magnetic resistive forces.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the magnetic element and coil assembly of Murty et al. to have included a magnetic plunger and coil assembly, as taught by JP-4300709, in order to provide a simpler shock absorber apparatus that eliminates the need for a rotary-to-linear converter.

Re: claims 6 and 14. Murty et al., as modified, teach the limitation of the battery storing electric energy generated by the movement of the magnetized plunger relative to the coil. See col. 1 lines 49-51, col. 2 lines 44-46, and col. 6 lines 4-6 of Murty et al.

Re: claims 7 and 15. Murty et al., as modified, teach the limitation of the circuit comprising a switching circuit 20,22,24,26,28,30. See figure 4 of Murty et al.

Re: claim 21. Murty et al., as modified, teach in the Murty reference the limitation wherein the control 44 determines when to charge the battery based on a level of movement of the vehicle support since as shown in figure 7 of Murty et al. and as disclosed in col. 4 line 53 – col. 5 line 15 and in col. 1 lines 49-51 and in col. 2 lines 44-46 it is shown that the system is in motor mode or generator mode depending on the speed and direction of actuator which is connected to the wheel.

3. Claims 2, 3, 5-7, 13-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 5091679 to Murty et al.

Re: claims 2, 3, 5, 13, 15, and 18. JP '709 shows in figure 1 a vehicle suspension assembly comprising a shock absorber comprising a magnetized plunger 14, a conductive coil 15 disposed about the magnetized plunger, forming a circuit, and a vehicle support 13 attachable to a wheel 22 with one of the magnetized plunger and the

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coil (particularly the magnetized plunger) fixed to move with the vehicle ground support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle support as disclosed in col. 2 lines 20-23 (based on consultation with Japanese translator) and as suggested in lines 1-10 of the English abstract by the discussion of the suspension control being active.

JP '709 describes the invention substantially as set forth above, but does not include the limitation of a battery being in communication with the circuit.

Murty et al. teach in figure 4 the use of a shock absorber comprising a magnetized element 12 and a conductive coil 14a-14c forming a circuit, the shock absorber including a battery 16 in communication with the circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery, as taught by Murty et al., in order to provide a means of energizing the conductive coil as taught by Murty et al. in col. 5 lines 52-55.

Re: claims 6, 14. JP '709 describes the invention substantially as set forth above, but does not include the limitation of storing in a battery energy generated by the movement of the magnetized plunger relative to the coil.

Murty et al. teach in col. 1 lines 49-51 and in col. 2 lines 44-46 the use a battery for storing electric energy generated by the suspension movements. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery that stores electric energy generated by the movement of the plunger relative to the coil, as

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taught by Murty et al., in order to provide a means of conserving energy for later use by electrical apparatuses of the vehicle.

Re: claim 7. JP '709, as modified, shows in JP '709 the circuit comprising a switching circuit 16.

4. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of Murty as applied to claims 7 and 15 above, and further in view of US Patent 3513408 to McGee.

JP '709, as modified, describes the invention substantially as set forth above, including the use of a switching circuit 16, but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709, as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

5. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of JP-4300709 as applied to claims 7 and 15 above, and further in view of US Patent 3513408 to McGee.

Murty et al., as modified, describe the invention substantially as set forth above,

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including the use of a switching circuit but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

6. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 6005316 to Harris.

Re: claim 9. JP '709 describes the invention substantially as set forth above in the rejection of claims 5 and 13 except the limitation of the battery, but does not specifically state that the switching circuit switches at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709 to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately

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controlling the position of the magnetized plunger to assist in carrying out the active suspension control function.

Re: claim 10. JP '709, as modified, shows in JP '709 a shock absorber wherein a control 16 and sensor disclosed in col. 2 lines 20-23 senses movement of the vehicle ground support and selectively activates the coil when it is desired to resist movement of the vehicle ground support.

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7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of Murty et al. as applied to claim 15, and further in view of US Patent 6005316 to Harris.

JP '709 describes the invention substantially as set forth above, but does not include the limitation of the switching circuit switching at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709, as modified, to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately controlling the position of the magnetized plunger to assist in carrying out the active suspension control function.

8. Claims 9, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of JP-4300709 and further in view of US Patent 6005316 to Harris.

Re: claims 9 and 17. Murty et al., as modified as set forth in the rejection of claims 5 and 15 above, describe the invention substantially as set forth above, but do not specifically state that the switching circuit switches at a higher frequency than the frequency of movement of the magnetized plunger.

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Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately controlling the position of the magnetized plunger to assist in carrying out the active suspension control function.

Re: claim 10. Murty et al., as modified, teach in figure 4 of Murty et al. the use of a control 44 that senses movement of the vehicle support and selectively actuates the coil when it is desired to resist movement of the vehicle support.

Response to Arguments

9. Applicant's arguments, see pg. 3, filed 3/1/04, with respect to the rejection(s) of claim(s) 18 under 35 USC 102 have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection based on 35 USC 103 is made in view of Murty et al. in view of JP '709 and JP'709 in view of Murty et al.

10. Applicant's arguments filed 3/1/04 have been fully considered but they are not persuasive.

With respect to the rejections involving Murty et al. in view of JP '709 Applicant argues that the Murty reference teaches away from the magnetic plunger modification citing the passage in col. 8 line 43 through col. 9 line 25 which states that the relative

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sprung mass/unsprung mass velocity can be determined from the dynamoelectric machine. Examiner notes that the modification of Murty in view of JP '709 simply involves modifying the rotary magnetizing element of Murty with a magnetic plunger, as taught by JP'709. Examiner maintains that such a modification provides a simpler shock absorber apparatus that eliminates the need for a rotary-to-linear converter which may be useful for apparatus real estate purposes. Such a modification does not result in the elimination of the ability to determine the relative sprung mass/unsprung mass velocity as suggested by Applicant. In col. 2 lines 54-56 Murty teaches that position sensors provide signals of the magnitude and direction of relative sprung mass/unsprung mass velocity. The modification does not suggest the elimination of the use of position sensors but merely the replacement of a rotary moving element for a vertically moving plunger type element for real estate purposes.

With respect to the arguments regarding JP '709 in view of Murty, Applicant argues that Examiner fails to explain how the battery of Murty would energize the conductive coil of JP'709. Examiner notes that the argument is more specific than the claim language. It is emphasized that the claim language in claim 5, for example, calls for a battery in communication with the circuit. In claim 6, the claim calls for the battery having the capability of storing electric energy. The Murty reference clearly teaches in figure 4 the use of a battery being in communication with a magnetizing circuit shown in the area of arrow 11. The Murty reference also teaches in col. 1 lines 49-52, for example, the use of a battery in a shock absorbing apparatus being used to store electric energy, teaching that the electric energy may be used by other electrical

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devices on the vehicle. Examiner maintains that the Murty reference provides an adequate explanation as to how one of ordinary skill would incorporate a battery into a circuit of a shock absorbing apparatus of JP'709 using figure 4 of Murty as a guide and provides an adequate motivation as to why one of ordinary skill would modify the shock absorbing apparatus of JP '709 with a battery.

With respect to claims 7 and 15, Applicant argues that the circuit 20,22,24,26,28,30 is identified as a bridge and not a switching circuit. Examiner notes that circuit 20,22,24,26,28,30 includes transistors that are considered to function as switches. Since the circuit includes switches 20,22,24,26,28,30, the circuit, as broadly claimed, may be considered a switching circuit.

With respect to claims 8 and 16, Applicant argues that the field effect transistor of McGee is not used to drive a magnetic plunger. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner notes that it is the combination of JP'709, as modified, and Murty et al., as modified, with the McGee reference that teaches the claimed invention. The McGee reference is used solely for the teaching of modifying a transistor to specifically be a field effect transistor since field effect transistors are known to have fast response times.

With respect to the use of the Harris reference, Applicant argues that there is no motivation or suggestion to combine the Harris reference with the base reference(s).

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Examiner notes that Harris teaches the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled to maintain or adjust desired position. Examiner notes that since the active shock absorbing capability of the vehicle suspension assembly of Murty et al., for example, is based on suspension movements or, particularly, the movement of a magnetized element connected to a wheel of the vehicle suspension, providing a means of maintaining or adjusting the position of the magnetized element would be beneficial in efficiently effecting the active suspension control.

Finally, with regards to the use of an untranslated reference, Examiner notes that in the Murty in view of JP '709 rejections, the JP'709 reference is used solely for the teaching of the use of a magnetizing element being a plunger. Examiner further notes that the plunger arrangement is clearly shown in figure 1 of JP '709. Nevertheless, a translation of the JP '709 reference has been requested.

Response to Amendment

11. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mmb 3/22/04

mmb

March 22, 2004

Melody M. Burch
3/22/04